

The immune response against *Chlamydia suis* partially protects against re-infection

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The aim of the present study was to reveal the characteristic features of genital *C. suis* infection and re-infection in sows by studying the immune response, pathological changes, replication of chlamydial bacteria in the genital tract and excretion of viable bacteria. Gilts were intravaginally infected and re-infected with *Chlamydia suis* strain S45, the type strain of this species. We demonstrated that S45 is pathogenic for the female urogenital tract. *Chlamydia* replication occurred throughout the urogenital tract, causing inflammation and pathology. Furthermore, genital infection elicited both cellular and humoral immune responses. Compared to the primo-infection of gilts with *Chlamydia suis*, re-infection was characterized by less severe macroscopic lesions and less *Chlamydia* elementary bodies and inclusions in the urogenital tract. This indicates the development of a certain level of protection following the initial infection. Protective immunity against re-infection associated with higher *Chlamydia*-specific IgG and IgA antibody titers in sera and vaginal secretions, higher proliferative responses of peripheral blood mononuclear cells (PBMC), higher percentages of blood B lymphocytes, monocytes and CD4⁺CD8⁺ T cells and upregulated production of IFN- γ and IL-10 by PBMC.